CLAIMS

What is claimed is:

1. A process for separating purified hemicellulose from caustic liquor from alkali extraction of hemicellulose from fiber comprising the steps of adding alcohol to the caustic liquor to precipitate the hemicellulose so that the hemicellulose floats on top of the caustic liquor and density separation of the floating hemicellulose precipitate from the caustic liquor simultaneously or about simultaneously with the precipitation of the hemicellulose.
2. The process of Claim 1 comprising the additional step of separating cellulose and cellulose-hemicellulose complexes from the caustic liquor.
3. The process of Claim 1 wherein the alcohol is in solution with water having a ratio of alcohol to water of about 1:1 to about 20:1.
4. The process of Claim 3 wherein the ratio of alcohol to water is about 3:1 to about 9:1.
5. The process of Claim 1 wherein the alkali extraction is performed at a moisture content from about 10% to about 60% with agitation at speeds of about 300 rpm to about 2,000 rpm.
6. The process of Claim 1 wherein the alcohol is selected from the group consisting of methanol, ethanol, isopropanol, tertiary butyl alcohol, acetone and combinations thereof.
7. The process of Claim 1 wherein the density separation occurs in a cyclone or a decanter.

8. The process of Claim 1 wherein the fiber is spent flake fiber or corn hull fiber.

9. The process of Claim 8 wherein the corn hull fiber is selected from the group consisting of crude fiber, dietary fiber and combinations thereof.

10. The process of Claim 1 wherein the alkali is an alkali metal hydroxide.

11. The process of Claim 10 wherein the alkali metal hydroxide is selected from the group consisting of sodium hydroxide, potassium hydroxide and combinations thereof.

12. The process of Claim 1 comprising the additional step of adding peroxide.

13. The process of Claim 12 wherein the peroxide is added during the alkali extraction.

14. A purified hemicellulose obtained by the process of Claim 1.

15. Purified forms of a cellulose and a cellulose-hemicellulose complex obtained by the process of Claim 2.

16. A process for separating purified hemicellulose and insoluble components including at least a cellulose and a cellulose-hemicellulose complex from caustic liquor comprising of steps of a) adding an alcohol selected from the group consisting of ethanol and methanol in solution with water having an alcohol to water ratio of about 1:1 to about 20:1 to the caustic liquor to precipitate the hemicellulose so that the hemicellulose floats on top of the caustic liquor, b) density separation of the floating hemicellulose precipitate from the caustic liquor in a density separation device simultaneously or about simultaneously with the precipitation of the

hemicellulose, c) removal of the caustic liquor from the density separation device and d) a second separation step to remove the insoluble components from the caustic liquor.

17. The process of claim 16 wherein the ratio of alcohol to water is about 3:1 to about 9:1.

18. A process for separating purified hemicellulose from caustic liquor from alkali extraction of hemicellulose from fiber comprising the steps of adding alcohol to the caustic liquor to cause the hemicellulose to float on top of the caustic liquor and separating the floating hemicellulose before it absorbs sufficient water to cause it to swell and settle into the caustic liquor.

19. The process of Claim 18 comprising the additional step of separating a hemicellulose and a cellulose-hemicellulose complex of the caustic liquor.

20. The process of Claim 18 wherein the alcohol is in solution with water having a ratio of alcohol to water of about 1:1 to about 20:1.